

**CHAPTER 20****LEAD-BASED PAINT****20-1 SCOPE**

Ingestion of lead or lead dust can cause a variety of adverse health effects in children and adults. Lead pigments in paint applied to facilities can be a source of hazardous exposure to lead. Children are at greater risk due to their lower body weight, developing nervous system, and greater tendency to ingest paint chips and dust.

**20-2 DEFINITIONS****20-2.1 Lead-based Paint (LBP)**

- a. Paint in liquid form. Paint that contains more than 0.06% lead by weight in the total non-volatile content of liquid paint.
- b. Paint in place. Equal or greater than 1.0 mg/square centimeter when using X-ray Fluorescence (XRF) analyzer or 0.5% by weight when using Atomic Absorption Spectroscopic (AAS) analysis.
- c. Lead-contaminated dust:
  - Floors > 200 micrograms per square foot
  - Window Sills > 500 micrograms per square foot
  - Window Wells > 200 micrograms per square foot

**20-2.2 LBP Hazard Determination.** The term "lead-based paint hazard" is defined as any condition that causes exposure to lead from lead-contaminated soil, dust and/or paint that is deteriorated or present in accessible surfaces that could result in adverse human health effects. LBP will generally result in adverse human health effects and is considered to be hazardous under the following conditions:

- a. When children under the age of seven chew or mouth on painted surfaces, or are exposed to LBP dust and/or soil contaminated with lead.
- b. When pregnant women are exposed to LBP environments for a prolonged period of time.
- c. When other facility occupants or workers are exposed to airborne LBP dust repeatedly or for a prolonged period of time.

**20-2.3 Facilities Likely to Contain LBP.** LBP is likely to be found in all industrial facilities, yellow painted pavement markings, non-industrial facilities constructed prior to 1980, and on steel structures (water tanks, pipelines, etc.). Painted ferrous metal surfaces in non-industrial facilities constructed during or after 1980 are also likely to contain LBP.

**20-2.4 High-priority Facilities.** Facilities or portions of facilities that are or may be frequented/used by children under age seven and pregnant women, which are further prioritized as follows: child development centers, annexes, and playground equipment; on-base licensed family day care homes; youth areas in medical and dental treatment centers; Department of Defense schools; military family housing (MFH) currently occupied by families with children under age seven; and remaining MFH.

**20-2.5 In-place Management.** Interim measures that reduce an LBP hazard to acceptable levels. They include monitoring the condition of painted surfaces; reducing or eliminating dust by high-phosphate detergent washing or

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top coating with latex painting or wall coverings; repairing deterioration with latex paint; and performing cleanup activities such as high-efficiency particulate air (HEPA) vacuuming, disposing of contaminated carpeting, and decontaminating upholstered furniture to the maximum extent possible.

### 20-3 CRITERIA

20-3.1 Testing for Lead in Paint Films. LBP films may be tested for lead content by the following two methods:

- a. Quantitative Testing. In-place testing of paint films by a portable X-Ray Fluorescence (XRF) Spectrum Analyzer, laboratory analysis of paint samples by an Atomic Absorption Spectrum (AAS) Analyzer, or other accurate techniques approved by the American Society for Testing Materials (ASTM) or similar recognized technical authorities. Note that the XRF action level is set lower than that specified by the Department of Housing and Urban Development (HUD) guidelines to compensate for inaccuracies in the instrument and to reduce the need for laboratory confirmation of readings close to 1.0 milligrams per square centimeter.
  - b. Quantitative Testing. Spot testing that can determine the presence but not the amount of lead in paint films.
  - c. Twenty-five percent of the target facilities (built between 1960 and 1978) will be tested by 1 January 1998; fifty percent by 1 January 2000; and the rest by 2002. Testing will be by quantitative testing as defined in Section 20-3.1.a.
  - d. Installations will select statistically representative groupings of facilities for inspection. Prioritize groupings for LBP inspection on a worst-first basis according to age and condition.
- (1) The number of facilities inspected in each grouping will be based on the table below. The sample size will provide 95% confidence that testing results can be applied to all units or buildings in the grouping.

Number of Units or Buildings in Grouping	Number of Units or Buildings to be inspected
20	11
40	31
60	38
80	42
100	45
200	51
300	54
400	55
600	56
1000	57
> 1000	

- (2) Interior. In each area (each room, closet, pantry, hall, part of a divided room, such as the dining area of a kitchen/dining room, etc.), the following painted surfaces or horizontal surfaces below painted surfaces will be tested:

Baseboard	1 in each area
Ceiling	in each area
Crown Molding	1 in each area
Door	Surface of door and one side of the frame on a representative interior door in each area
Fireplace	1 if present
Floor	1 in each area
Radiator	1 in each area

Shelf	1 in each area
Shelf support	in each area
Stairs	1 each of riser, tread, stringer, newel post, railing, cap, balustrade
Wall	1 each of upper wall, lower wall, and chair rail, (if applicable)
Window	1 each of sash, casing, and sill on a representative window
Plastic mini-blinds	1 in each room

## (3) Exterior.

Ceiling	1 in each area
Door	1 of each surface of door and door casing
Fence	1 each
Floor	1 each
Joist	1 each
Lattice	1 each
Railing	1 each
Painted roofs	1 each
Porch	1 each
Railing cap	1 each
Siding	1 each
Stairs	1 each of tread, riser, and handrail
Support column	1 each
Trim	1 each of upper and lower
Window	1 each of sill, casing, sash, and well on a representative window (also cellar window unit)

- e. Medical providers on DOD installations should implement a program to test children below the age of seven to determine LBP exposure.
- f. Personnel selected to perform testing for LBP that use XRF or AAS instruments shall be certified in the operation of the equipment.
- g. All DOD installations will prepare, maintain, and implement a Lead Base Paint Plan (LBPP) for the control, elimination, cleanup, and reporting of LBP contamination.
- h. Installations shall take appropriate measures to conduct risk assessment inspections, interim controls and elimination of LBP hazards.

20-3.2 Restricting the Use of Lead-based Paint. Restrict liquid paints or coatings to no more than 0.06 percent lead by weight of the non-volatile solids for use in all facilities, industrial and non-industrial. This is to reduce the potential LBP risk on installations and to minimize the precautions that will be needed when working on painted surfaces in the future.

20-3.3 Abatement and Management of LBP. LBP will be abated and managed as follows:

- a. Abatement. LBP shall be abated from high priority facilities. Abatement may include removal or encapsulation. Removal will be undertaken when the painted surfaces are badly deteriorated (chipped or weathered). Encapsulation will be undertaken when the painted surfaces do not exhibit any signs of chipping or wear.

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- b. Management. LBP shall be managed by monitoring the condition of painted surfaces, top coating by painting or wall coverings, and repairing deterioration by painting.

20-3.4 Disposal of LBP Contaminated Construction and Demolition Material. Construction and demolition material disposed of at an approved off-site municipal solid waste landfill shall comply with the testing and disposal requirements of the permitted facility.

(Note that the following disposal criterion for LBP construction and demolition is provided for your information. Adopting this policy will reduce the probability of you or your commander being named the responsible party for not taking appropriate corrective action. LBP wastes are special waste material having the potential to have lead and cadmium levels above the regulatory levels. Lead and cadmium levels above the 5 mg/l and 1 mg/l, respectively, regulatory levels will not be disposed of in a solid waste landfill. These types of wastes shall be disposed of as hazardous waste. LBP wastes below the lead and cadmium regulatory levels may be disposed of in a permitted solid waste landfill. Construction and demolition waste suspected of, or reported to contain LBP contamination must be profiled through the performance of a toxicity analysis. All construction and demolition waste that is below the lead and cadmium regulatory levels may be disposed of in a permitted landfill. A copy of the toxicity analysis will be kept on file).

20-3.5 Disposal of LBP Chips and Contaminated Media. A toxicity analysis will be performed on LBP chips and contaminated media to determine whether the regulatory levels have been exceeded for lead and cadmium. If the regulatory levels have been exceeded, the LBP chips and contaminated media must be disposed of as hazardous waste. If the regulatory levels have not been exceeded, the LBP chips and contaminated media may be disposed of in a permitted solid waste landfill, subject to the management practices of the permitted solid waste landfill.

20-3.6 Radiological Program Requirements for Use of XRF Instruments. XRF instruments contain radioactive sources which require control and management as follows;

- a. Radiation Program. A Radiation Protection Program shall be established that includes a qualified Radiation Control Officer (RCO), internal Standard of Operations (SOPs) / regulations for storage, receipt, use, transport and disposal of radioactive material.
- b. Service Specific Requirements. Service specific forms must be submitted to the Radiation Control Officer / Radiation Safety Officer for approval prior to procurement of an XRF instrument.
- c. XRF Users. Any person who uses an XRF instrument must have received at least 8 hours of specific training on safe use of the instrument.
- d. Personal Dosimetry Requirements. All XRF users must wear and be included in a personal dosimetry program that require whole body and ring finger thermoluminescent dosimeters (TLDs).